

AMENDMENT TO THE CLAIMS

Please amend the claims as follows.

Please cancel claims 42, 43, 45 and 47, without prejudice or disclaimer.

This listing of claims will replace all prior versions, and listing, of claims in the application:

Claims 1 to 7 (canceled)

Claim 8 (currently amended): A feed comprising a phytase made by a method comprising the following steps:

- (a) providing a nucleic acid derived from an E. coli ~~a bacteria~~, wherein the nucleic acid encodes a polypeptide having a phytase activity;
- (b) providing a composition comprising a feed;
- (c) expressing the nucleic acid under conditions which allow expression of the phytase; and
- (d) mixing the phytase of (c) with the composition of (b), thereby making a feed comprising a phytase.

Claim 9 (currently amended): The feed of claim 8, wherein the nucleic acid is expressed by in vitro transcription.

Claim 10 (previously presented): The feed of claim 8, wherein the nucleic acid is expressed in a cell.

Claim 11 (previously presented): The feed of claim 10, wherein the nucleic acid is expressed in a yeast cell under conditions which allow expression of the enzyme in the yeast cell.

Claim 12 (currently amended): The feed of claim 8, wherein the phytase-encoding nucleic acid has a sequence as set forth in:

- a) SEQ ID NO:1; or
 - b) SEQ ID NO:1, wherein T is substituted with U; or
 - c) SEQ ID NO:1 from nucleotide 1 to 1296; or
 - d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U;
- or wherein the polypeptide has an amino acid sequence as set forth in:
- [[e)] (i) SEQ ID NO:2; or
 - [[f)] (ii) SEQ ID NO: 2 from amino acids 1 to 432.

Claim 13 (currently amended): A feed comprising a recombinant phytase, wherein the recombinant phytase is encoded by a nucleic acid derived from an E. coli ~~a-bacteria~~.

Claim 14 (currently amended): The feed of claim 13, wherein the phytase is encoded by a nucleic acid having a sequence as set forth in:

- a) SEQ ID NO:1; or
 - b) SEQ ID NO:1, wherein T is substituted with U; or
 - c) SEQ ID NO:1 from nucleotide 1 to 1296; or
 - d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U;
- or wherein the phytase has an amino acid sequence as set forth in:
- [[e)] (i) SEQ ID NO:2; or
 - [[f)] (ii) SEQ ID NO: 2 from amino acids 1 to 432.

Claim 15 (withdrawn): A method for treating a feed comprising a phytate to lower the phytate content in the feed and increasing the amount of inorganic phosphorous in the feed comprising the following steps:

- (a) providing a recombinant phytase encoded by a nucleic acid derived from an *E. coli*;
- (b) providing a composition comprising a phytate-comprising feed;

(c) contacting the phytase of (a) with the composition of (b) under conditions wherein the phytase catalyzes the hydrolysis of phytate, thereby making a feed lower in phytate content and higher in inorganic phosphorous content.

Claim 16 (withdrawn): The method of claim 15, wherein the phytase is encoded by a nucleic acid having a sequence as set forth in SEQ ID NO:1, or wherein the phytase has an amino acid sequence as set forth in SEQ ID NO:2.

Claim 17 (withdrawn): A method for supplementing the diet of an animal by increasing the amount of inorganic phosphorous in an ingested feed comprising feeding to the animal a composition comprising a recombinant phytase, wherein the recombinant phytase is encoded by a nucleic acid derived from an *E. coli*.

Claim 18 (withdrawn): The method of claim 17, wherein the phytase is encoded by a nucleic acid having a sequence as set forth in SEQ ID NO:1, or wherein the phytase has an amino acid sequence as set forth in SEQ ID NO:2.

Claim 19 (currently amended): A food supplement for an animal comprising a composition comprising a recombinant phytase, wherein the recombinant phytase is encoded by a nucleic acid derived from an *E. coli* ~~a bacteria~~.

Claim 20 (currently amended): The food supplement of claim 19, wherein the phytase is encoded by a nucleic acid having a sequence as set forth in:

- a) SEQ ID NO:1; or
- b) SEQ ID NO:1, wherein T is substituted with U; or
- c) SEQ ID NO:1 from nucleotide 1 to 1296; or
- d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U;

or wherein the phytase has an amino acid sequence as set forth in:

[[e)] (i) SEQ ID NO:2; or

[[f)] (ii) SEQ ID NO: 2 from amino acids 1 to 432.

Claim 21 (previously presented): The food supplement of claim 20, wherein the nucleic acid is expressed in a plant cell and the plant cell is fed to the animal.

Claim 22 (currently amended): The food supplement of claim 21, wherein the plant cell is in ~~comprises~~ a transgenic plant or plant part.

Claim 23 (currently amended): The food supplement of claim 19, wherein the composition is ~~comprises~~ an aqueous liquid formulation or the composition further comprises an aqueous liquid formulation.

Claim 24 (currently amended): A drinkable foodstuff comprising a recombinant phytase, wherein the recombinant phytase is encoded by a nucleic acid derived from an *E. coli* ~~a bacteria~~.

Claim 25 (previously presented): The drinkable foodstuff of claim 24 comprising a liquor, a wine, a mixed alcoholic drink, a wine cooler, an alcoholic coffee, a beer, a near-beer, a juice, an extract, a homogenate or a puree.

Claim 26 (currently amended): The food supplement ~~[[feed]]~~ of claim 19 ~~[[9]]~~, wherein the nucleic acid is expressed by *in vitro* transcription ~~in a cell lysate or equivalent.~~

Claim 27 (Previously presented): The feed of claim 10, wherein the cell is prokaryotic cell or a eukaryotic cell.

Claim 28 (Previously presented): The feed of claim 10, wherein the cell is a bacterial cell, a yeast cell, a plant cell, an insect cell, a fungal cell or an animal cell.

Claim 29 (currently amended): The feed of claim 28, wherein the yeast cell is a *Saccharomyces* sp., ~~a *Schwanniomyces* sp., a *Pichia* sp. yeast cell, a *Hansenula* sp. yeast cell, a *Candida* yeast cell or a *Torulopsis* sp. yeast cell.~~

Claim 30 (currently amended): The feed of claim 29, wherein the yeast cell is a *Saccharomyces cerevisiae*, ~~a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.~~

Claim 31 (Previously presented): The feed of claim 28, wherein the bacterial cell is a gram negative bacteria or a gram positive bacteria.

Claim 32 (Canceled)

Claim 33 (previously presented): The feed of claim 31, wherein the gram negative bacteria is an *Escherichia coli*.

Claim 34 (currently amended): The feed of claim 31, wherein the gram positive bacteria is a *Streptomyces* sp., ~~a *Lactobacillus* sp., a *Lactococcus* sp.~~ or a *Bacillus* sp.

Claim 35 (currently amended): The feed of claim 34, wherein gram positive bacteria is a ~~*Lactobacillus gasseri*, a *Lactococcus lactis*, a *Lactococcus cremoris* or a *Bacillus subtilis*.~~

Claim 36 (previously presented): The feed of claim 28, wherein the fungal cell is an *Aspergillus* sp.

Claim 37 (previously presented): The feed of claim 36, wherein the fungal cell is an *Aspergillus terreus* or an *Aspergillus ficuum*.

Claim 38 (currently amended): The feed of claim 8, wherein the nucleic acid is contained in ~~comprises~~ a cloning vehicle.

Claim 39 (currently amended): The feed of claim 38, wherein the cloning vehicle comprises an expression cassette, a vector, a plasmid, a phage, a phagemid, a cosmid, a fosmid, ~~a bacteriophage~~ or an artificial chromosome, or, the cloning

vehicle is an expression cassette, a vector, a plasmid, a phage, a phagemid, a cosmid, a fosmid or an artificial chromosome.

Claim 40 (currently amended): The feed of claim 10 ~~[[8]]~~, wherein the polypeptide, comprising a further comprises a signal peptide (a leader sequence), and ~~the polypeptide~~ is secreted by the cell.

Claim 41 (currently amended): The feed of claim 8 ~~[[42]]~~, wherein the *E. coli* is an *Escherichia coli* B.

Claims 42 to 43 (canceled)

Claim 44 (currently amended): The feed of claim 13 ~~[[43]]~~, wherein the *E. coli* is an *Escherichia coli* B.

Claim 45 (canceled)

Claim 46 (currently amended): The food supplement of claim 19 ~~[[45]]~~, wherein the *E. coli* is an *Escherichia coli* B.

Claim 47 (canceled)

Claim 48 (Previously presented): The drinkable foodstuff of claim 24 ~~[[47]]~~, wherein the *E. coli* is an *Escherichia coli* B.

Claim 49 (currently amended): The drinkable foodstuff of claim 24, wherein the phytase is encoded by a nucleic acid having a sequence as set forth in:

- a) SEQ ID NO:1; or
 - b) SEQ ID NO:1, wherein T is substituted with U; or
 - c) SEQ ID NO:1 from nucleotide 1 to 1296; or
 - d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U;
- or wherein the phytase has an amino acid sequence as set forth in:
- ~~[[e)]]~~ (i) SEQ ID NO:2; or

[[f]] (ii) SEQ ID NO: 2 from amino acids 1 to 432.

Claim 50 (new): The food supplement of claim 19, wherein the phytase-expressing nucleic acid is expressed in a cell.

Claim 51 (new): The food supplement of claim 50, wherein the nucleic acid is expressed in a yeast cell under conditions which allow expression of the phytase in the yeast cell.

Claim 52 (new): The food supplement of claim 50, wherein the polypeptide, comprising a signal peptide (a leader sequence), is secreted by the cell.

Claim 53 (new): The food supplement of claim 19, wherein the phytase lacks a signal peptide (a leader sequence).

Claim 54 (new): The feed of claim 8, wherein the nucleic acid encodes a phytase lacking a signal peptide (a leader sequence) and has a sequence as set forth in:

- a) SEQ ID NO:1, lacking the bases encoding amino acid residues 1 to 22; or
 - b) SEQ ID NO:1, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22; or
 - c) SEQ ID NO:1 from nucleotide 1 to 1296, lacking the bases encoding amino acid residues 1 to 22; or
 - d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22;
- or wherein the polypeptide has an amino acid sequence as set forth in:
- (i) SEQ ID NO:2, and lacking amino acid residues 1 to 22; or
 - (ii) SEQ ID NO: 2 from amino acids 1 to 432, and lacking amino acid residues 1 to 22.

Claim 55 (new): The food supplement of claim 19, wherein the phytase lacks a signal peptide (a leader sequence) and is encoded by a nucleic acid having a sequence as set forth in:

- a) SEQ ID NO:1, lacking the bases encoding amino acid residues 1 to 22; or

b) SEQ ID NO:1, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22; or

c) SEQ ID NO:1 from nucleotide 1 to 1296, lacking the bases encoding amino acid residues 1 to 22; or

d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22;

or wherein the polypeptide has an amino acid sequence as set forth in:

(i) SEQ ID NO:2, and lacking amino acid residues 1 to 22; or

(ii) SEQ ID NO: 2 from amino acids 1 to 432, and lacking amino acid residues 1 to 22.

Claim 56 (new): The drinkable foodstuff of claim 24, wherein the phytase-expressing nucleic acid is expressed in a cell.

Claim 57 (new): The drinkable foodstuff of claim 56, wherein the polypeptide, comprising a signal peptide (a leader sequence), is secreted by the cell.

Claim 58 (new): The drinkable foodstuff of claim 24, wherein the recombinant phytase lacks a signal peptide (a leader sequence) and is encoded by a nucleic acid having a sequence as set forth in:

a) SEQ ID NO:1, lacking the bases encoding amino acid residues 1 to 22; or

b) SEQ ID NO:1, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22; or

c) SEQ ID NO:1 from nucleotide 1 to 1296, lacking the bases encoding amino acid residues 1 to 22; or

d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22;

or wherein the polypeptide has an amino acid sequence as set forth in:

(i) SEQ ID NO:2, and lacking amino acid residues 1 to 22; or

(ii) SEQ ID NO: 2 from amino acids 1 to 432, and lacking amino acid residues 1 to 22.

Claim 59 (new): A method for treating a feed comprising a phytate to lower the phytate content in the feed and increasing the amount of inorganic phosphorous in the feed comprising the following steps:

- (a) providing a recombinant phytase recombinant phytase lacking a signal peptide (a leader sequence) and encoded by a nucleic acid having a sequence as set forth in: (i) SEQ ID NO:1, lacking the bases encoding amino acid residues 1 to 22; (ii) SEQ ID NO:1, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22; (iii) SEQ ID NO:1 from nucleotide 1 to 1296, lacking the bases encoding amino acid residues 1 to 22; or (iv) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22, or wherein the polypeptide has an amino acid sequence as set forth in: SEQ ID NO:2, and lacking amino acid residues 1 to 22, or SEQ ID NO: 2 from amino acids 1 to 432, and lacking amino acid residues 1 to 22;
- (b) providing a composition comprising a phytate-comprising feed; and
- (c) contacting the phytase of (a) with the composition of (b) under conditions wherein the phytase catalyzes the hydrolysis of phytate, thereby making a feed lower in phytate content and higher in inorganic phosphorous content.

Claim 60 (new): The feed of claim 28, wherein the yeast cell is a *Schwanniomyces* sp., a *Pichia* sp. yeast cell, a *Hansenula* sp. yeast cell, a *Candida* yeast cell or a *Torulopsis* sp. yeast cell.

Claim 61 (new): The feed of claim 28, wherein the yeast is a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.

Claim 62 (new): The feed of claim 31, wherein the gram positive bacteria is a *Lactobacillus* sp. or a *Lactococcus* sp.

Claim 63 (new): The feed of claim 62, wherein gram positive bacteria is a *Lactobacillus gasseri*, a *Lactococcus lactis*, or a *Lactococcus cremoris*.

Claim 64 (new): The food supplement of claim 19, wherein the animal is a nonhuman animal.

Claim 65 (new): The feed of claim 38, wherein the cloning vehicle comprises a bacteriophage.

Claim 66 (new): The feed of claim 13, wherein the nucleic acid encodes a phytase lacking a signal peptide (a leader sequence) and has a sequence as set forth in:

- a) SEQ ID NO:1, lacking the bases encoding amino acid residues 1 to 22; or
- b) SEQ ID NO:1, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22; or
- c) SEQ ID NO:1 from nucleotide 1 to 1296, lacking the bases encoding amino acid residues 1 to 22; or
- d) SEQ ID NO:1 from nucleotide 1 to 1296, wherein T is substituted with U, lacking the bases encoding amino acid residues 1 to 22;
or wherein the polypeptide has an amino acid sequence as set forth in:
 - (i) SEQ ID NO:2, and lacking amino acid residues 1 to 22; or
 - (ii) SEQ ID NO: 2 from amino acids 1 to 432, and lacking amino acid residues 1 to 22.